

and particular parameter of a process. A particular parameter must first be recognized as a result-effective variable, ie., a variable which has an impact on the desired result, before a person of ordinary skill would be motivated to modify that parameter<sup>1</sup>). Nothing in the teaching of **GB 1,226,318** suggests or implies that the amount in which the carboxylic acid is employed in the process has an influence on how much or how little of the undesired by-product ethyl 3-dimethylamino-2-phenylpropionate (*in the following also referred to as "the propionate"*) remains in the ethyl 2-dimethylamino-1-phenyl-3-cyclohexene-1-carboxylate (*in the following also referred to as "the carboxylate"*). A person of ordinary skill in the art who seeks to find a way to reduce the amounts of unwanted propionate in the carboxylate and who searches the teaching of **GB 1,226,318** for means to achieve the desired improvement finds no information which would suggest or imply that any one of the process parameters, such as solvent, reaction time, reaction temperature, nature of co-reactant, amount of co-reactant and the like, is effective with regard to the desired result. Provided with the teaching of **GB 1,226,318** and having the desired result in mind, such a person of ordinary skill would therefore be left with the option

- a) to modify each and every parameter of the process described in **GB 1,226,318**; or
- b) to try out other means, ie. separation methods such as chromatography and the like.

The teaching of **GB 1,226,318** does not even suggest that the amount of the undesired propionate can be influenced by the disclosed process. A person of ordinary skill in the art would therefore approach option (a) without a reasonable expectation that the modification of each and every process parameter will sooner or later achieve the desired result. Moreover, **GB 1,226,318** specifically states that oxalic acid or fumaric acid is to be employed in a ratio of from 1.0 to 1.2 mol per mol of the *trans*-carboxylate and that "*the use of more than 1.2 mol of acid per mol of trans-isomer serves no useful purpose and renders the process less economical*"<sup>2</sup>). A person of ordinary skill who is informed that a particular modification of a process parameter serves no useful purpose would clearly not be motivated to make that particular modification.

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1) Cf. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977).

2) Cf. page 2, indicated lines 104 to 107, of **GB 1,226,318**.

The Examiner also took the position that the ratio of from 1.0 to 1.2 mol of acid per mol of the *trans*-carboxylate overlapped with applicants' range of from 0.75 to 2.0 equivalent of the acid. It is, however, respectfully urged that the range recited in applicants' claims relates to the equivalents of acid per total amount of the carboxylate, ie. the sum of the amounts of all carboxylate isomers which are present. In contrast thereto, the range addressed in **GB 1,226,318** solely relates to the amount of *trans*-carboxylate which is present in a mixture of *trans*-carboxylate and *cis*-carboxylate. The ratio which is addressed in **GB 1,226,318** can therefore not be compared with applicants' range. A review of the information which is provided in the context of Example 1 of **GB 1,226,318** illustrates the foregoing:

- The mixture of *trans*-carboxylate and *cis*-carboxylate is employed in an amount of 281 g corresponding to about 1.03 mol.
- The mixture contains about 28.1% of the *trans*-carboxylate, corresponding to 79.0 g and 0.29 mol.
- The oxalic acid is employed in amounts of 40.2 g corresponding to 0.32 mol.

Based on those amounts, the molar ratio of the acid to the *trans*-carboxylate is  $0.32/0.29 = \underline{1.1}$ , and the molar ratio of the acid to the mixture of *trans*-carboxylate and *cis*-carboxylate is  $0.32/1.03 = 0.31$ . The Examiner's position that applicants' range and the range addressed in **GB 1,226,318** is, therefore not deemed to be well taken.

The Examiner also remarked that the reaction times of from 5 to 20 minutes in accordance with the teaching of **GB 1,226,318** and of from 0.5 to 2 hours in accordance with applicants' process were close enough so that a person of ordinary skill in the art could reasonably expect to arrive at similar results. Considering that **GB 1,226,318** states that amounts of acid which go beyond the range of 1.0 to 1.2 mol of acid per mol of the *trans*-carboxylate serve no useful purpose and, therefore, neglecting the distinction of applicants' process which resides in the amount in which the acid is employed, a person of ordinary skill in the art could -according to the Examiner- reasonably expect that a similar separation of *trans*-carboxylate and *cis*-carboxylate is achieved when the reaction time is extended beyond the time frame of from 5 to 20 minutes which is specified in **GB 1,226,318**. A person of ordinary skill could, however, not reasonably expect to achieve a reduction of the content of the undesired propio-

nate. As such, the results which are obtained in accordance with applicants' process are, in themselves, unexpected results. It is well settled that the inventive subject matter as a whole, which is referred to in the statute, embraces not only the the features which are recited in the claims, but also the properties which are inherent in the combination of features defined in the claims, as well as the problem which is solved<sup>3</sup>). Also, in a determination whether a claimed method is obvious within the meaning of Section 103(a), the particular result which is obtained by the process must be considered along with the materials which are used and the nature of the specific process which is employed<sup>4</sup>).

In light of the foregoing and the arguments already presented in their reply dated August 20, 2004, it is respectfully urged that the teaching of **GB 1,226,318** does not establish that the subject matter of applicants' claims was prima facie obvious within the meaning of Section 103(a) at the time applicants made their invention. It is therefore respectfully requested that the rejection of Claims 1 and 2 under Section 103(a) based on the teaching of **GB 1,226,318** be withdrawn. Favorable action is solicited.

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Respectfully submitted,

NOVAK DRUCE DELUCA & QUIGG



Daniel S. Kim

Reg. No. 51,877

1350 Connecticut Ave, N.W.  
Washington, D.C. 20036  
(202) 659-0100

DSK/BAS

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- 3) Cf. In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Wright, 848 F.2d 1216, 6 USPQ2d 1959 (CAFC 1988), overruled on other grounds in In re Dillon, 919 F.2d 688, 16 USPQ2d 1897 (CAFC 1990) (en banc), cert. denied 500 U.S. 904 (1991)
- 4) In re Dillon, 919 F.2d 688, 695, 16 USPQ2d 1897, 1903 (CAFC 1990) (en banc), cert. denied, 500 U.S. 904 (1991).